

WHAT IS CLAIMED IS:

1. A femoral neck fracture fixation system, comprising:  
a plurality of elongated bodies, each having a proximal end and a distal end;  
a distal anchor on the distal end of each of the elongated bodies;  
a first retention structure the elongated bodies, proximal to the distal anchor;  
and  
a plate with a plurality of openings, the plate being moveably carried by the plurality elongated bodies, and  
wherein the plate is movable in the distal direction with respect to the elongated bodies and the retention structures resist proximal movement of the plate with respect to the elongated bodies.
2. A femoral neck fracture fixation device as in Claim 1, wherein each elongated body comprises first portion and a second portion that are detachably coupled to each other at a junction.
3. A femoral neck fracture fixation device as in Claim 1, wherein each of the openings is associated with a tubular sleeve that in a first position extends distally past the junction between the first portion and the second portion.
4. A femoral neck fracture fixation device as in Claim 1, wherein the distal anchor comprises a helical flange.
5. A femoral neck fracture fixation device as in Claim 1, wherein the first retention structure comprises an annular structure.
6. A femoral neck fracture fixation device as in Claim 1, wherein the first retention structure comprises a flange.
7. A femoral neck fracture fixation device as in Claim 1, wherein the first retention structure comprises a thread.
8. A femoral neck fracture fixation device as in Claim 7, further comprising a second retention structure on the interior of the tubular portion for cooperating with the first retention structure on the elongated bodies.
9. A femoral neck fracture fixation device as in Claim 1, wherein the plate includes at least three openings arranged in a triangular pattern.

10. A femoral neck fracture fixation device as in Claim 1, further comprising a cap configured to cover the plate.

11. A femoral neck fracture fixation device as in Claim 1, further comprising at least one set screw for coupling the cap to the plate.

12. A femoral neck fracture fixation device as in Claim 1, further comprising a side plate that extends from the plate.

13. A femoral neck fracture fixation device as in Claim 12, wherein the side plate includes a plurality of openings for receiving femoral shaft screws.

14. A femoral neck fracture fixation device as in Claim 13, wherein the plurality of openings are located approximately 8 to 18 millimeters apart from each other.

15. A femoral neck fracture fixation device as in Claim 15, wherein the plurality of openings are located at least 2 to 5 millimeters from an outer edge of the plate.

16. A femoral neck fracture fixation device as in Claim 1, wherein each of the openings in the plate define a tubular portion.

17. A femoral neck fracture fixation device as in Claim 16, wherein each of tubular portions define a longitudinal axis and at least two of the longitudinal axes are parallel to each other.

18. A femoral neck fracture fixation device as in Claim 16, wherein each of tubular portions define a longitudinal axis and at least two of the longitudinal axes are not parallel to each other.

19. A femoral neck fracture fixation device as in Claim 16, wherein each of tubular portions define a longitudinal axis which forms an angle with a bone contacting face of the plate, the angle being in the range of about 90 degrees to 150 degrees.

20. A femoral neck fracture fixation device as in Claim 1, wherein each opening is formed within a housing that is angularly adjustable with respect to the plate.

21. A bone fracture fixation device, comprising:

at least two of elongated bodies, each having a proximal end and a distal end;

a cancellous bone anchor on the distal end of each of the two the elongated bodies;

a plate having at least two openings and being axially movably mountable on the elongated bodies; and

complimentary surface structures in between the elongated bodies and the plate that permit advancing the plate in the distal direction to apply compression across a fracture but that resist axial proximal movement of the plate with respect to the elongated bodies.

22. A bone fracture fixation device as in Claim 22, wherein each elongated body comprises first portion and a second portion that are detachably coupled to each other at a junction.

23. A bone fracture fixation device as in Claim 23, wherein each of the openings is associated with a tubular sleeve that in a first position extends distally past the junction between the first portion and the second portion.

24. A bone fracture fixation device as in Claim 22, wherein the cancellous bone anchor comprises a helical flange.

25. A bone fracture fixation device as in Claim 22, wherein the complimentary surface structures comprise an annular structure.

26. A bone fracture fixation device as in Claim 22, wherein the complimentary surface structures comprise a flange.

27. A bone fracture fixation device as in Claim 22, wherein the complimentary surface structures comprise a thread.

28. A bone fracture fixation device as in Claim 22, wherein the plate includes at least three openings arranged in a triangular pattern.

29. A bone fracture fixation device as in Claim 22, further comprising a cap configured to cover the at least two openings in the plate.

30. A bone fracture fixation device as in Claim 29, further comprising at least one set screw for coupling the cap to the plate.

31. A bone fracture fixation device as in Claim 22, further comprising a side plate that extends from the plate.

32. A bone fracture fixation device as in Claim 31, wherein the side plate includes a plurality of openings for receiving femoral shaft screws.

33. A bone fracture fixation device as in Claim 22, wherein the at least two openings are located approximately 8 to 18 millimeters apart from each other.

34. A bone fracture fixation device as in Claim 22, wherein the at least two openings are located at least 2 to 4 millimeters from an outer edge of the plate.

35. A bone fracture fixation device as in Claim 22, wherein each of the at least two openings define a tubular portion.

36. A bone fracture fixation device as in Claim 35, wherein each of tubular portions define a longitudinal axis and at least two of the longitudinal axes are parallel to each other.

37. A bone fracture fixation device as in Claim 35, wherein each of tubular portions define a longitudinal axis and at least two of the longitudinal axes are not parallel to each other.

38. A bone fracture fixation device as in Claim 35, wherein each of tubular portions define a longitudinal axis which forms an angle with a bone contacting face of the plate, the angle being in the range of about 90 degrees to 150 degrees.

39. A bone fracture fixation device as in Claim 22, wherein each of the at least two openings is formed within a housing that is angularly adjustable with respect to the plate.

40. A method of treating a femoral fracture, comprising the steps of:  
drilling a plurality of bores distally into the femur in the direction of a fracture;  
advancing a fixation pin into each of the bores;  
rotating each of the fixation pins to engage bone distal to the fracture; and  
advancing a plate with a plurality of openings distally along the fixation pins  
to compress the fracture.

41. A method of treating a femoral fracture as in Claim 40, wherein the drilling step comprises drilling the bores along an axis which extends through the femoral neck and into the head of the femur.

42. A method of treating a femoral fracture as in Claim 40, wherein the advancing step comprises advancing a fixation pin having an elongate body with a helical anchor on a distal end and a plurality of retention structures proximal to the helical anchor for engaging the plate.

43. A method of treating a femoral fracture as in Claim 40, wherein the advancing the plate step comprises axially advancing the plate without rotating the plate with respect to the fixation pins.

44. A method of treating a femoral fracture as in Claim 40, wherein the fracture is a femoral neck fracture, an intertrochanteric fracture or a subtrochanteric fracture.

45. A method of treating a femoral fracture as in Claim 40, further wherein advancing a fixation pin into each of the bores comprises advancing a fixation pin having a first portion that forms a cancellous bone anchor and a second portion that forms a proximal end.

46. A method of treating a femoral fracture as in Claim 45, comprising separating and removing the second portion from the first portion.

47. A method of treating a femoral fracture as in Claim 46, wherein separating and removing the second portion from the first portion comprises rotating the second portion with respect to the first portion.

48. A method of securing a first bone fragment to a second bone fragment, comprising the steps of:

drilling a plurality of bores through the first bone fragment in the direction of the second bone fragment;

advancing a fixation pin through each of the bores;

rotating at least a first portion of each of the fixation devices to secure the fixation pins to the second fragment; and

axially advancing a plate with a plurality of openings over at least a second portion of each of the fixation pins to engage the first fragment.

49. A method of securing a first bone fragment to a second bone fragment as in Claim 48, wherein the second bone fragment comprises the head of a femur.

50. A method of securing a first bone fragment to a second bone fragment as in Claim 48, wherein the second bone fragment comprises the tibia.

51. A method of securing a first bone fragment to a second bone fragment as in Claim 48, wherein the second bone fragment comprises the fibula.

52. A method of securing a first bone fragment to a second bone fragment as in Claim 48, wherein the second bone fragment comprises the femur.

53. A method of securing a first bone fragment to a second bone fragment as in Claim 52, wherein the first bone fragment comprises the femur.

54. A method of securing a first bone fragment to a second bone fragment as in Claim 48, further wherein advancing a fixation pin into each of the bores comprises advancing a fixation pin having a first portion that forms a cancellous bone anchor and a second portion that forms a proximal end.

55. A method of securing a first bone fragment to a second bone fragment as in Claim 54, comprising separating and removing the second portion from the first portion.

56. A method of securing a first bone fragment to a second bone fragment as in Claim 55, wherein separating and removing the second portion from the first portion comprises rotating the second portion with respect to the first portion.